ELSEVIER

Journal of Electron Spectroscopy and Related Phenomena 78 (1996) vii–xxii

JOURNAL OF ELECTRON SPECTROSCOPY and Related Phenomena

Contents

Special Issue: Proceedings of the Eleventh International Conference on Vacuum Ultraviolet Radiation Physics, Tokyo, Japan, 27 August–1 September 1996

Foreword xxiii

Sponsorship xxv

Committees xxvii

Conference Program xxviii

List of participants xxix

Volume 78

Materials science research by synchrotron radiation spectroscopy
Y. Petroff (Grenoble, France) 1

Theoretical studies on core-level spectra of solids
A. Kotani (Tokyo, Japan) 7

X-ray Photoemission Electron Microscopy: Magnetic circular dichroism imaging and other contrast mechanisms
B.P. Tonner, D. Dunham, T. Droubay, J. Kikuma and J. Denlinger (Milwaukee, USA) 13

Multiple photoionization of free atoms
J. Samson, Z.X. He, W. Stolte and J.N. Cutler (Lincoln, NE, USA) 19

Soft X-ray emission spectroscopy in the nineties
E.J. Nordgren (Uppsala, Sweden) 25

Spectral weight transfer, mass renormalization and chemical potential shift in Mott–Hubbard systems
A. Fujimori, K. Morikawa, A. Ino and T. Mizokawa (Tokyo, Japan) 31

Disorder induced effects on electronic structure of transition metal oxides
D.D. Sarma (Bangalore, India) 37

Electronic structures of noble metal–Pd binary alloys studied by photoemission using synchrotron radiation
S.-J. Oh and T.-U. Nahm (Seoul, South Korea) 43

Electron spectroscopies and partial excitation spectra in Cr_2O_3
R. Zimmermann, P. Steiner and S. Hüfner (Saarbrücken, Germany) 49

Multiple-Cu-site effects on core-level photoemission spectra for CuO_2 planar systems
K. Okada (Yamaguchi, Japan) and A. Kotani (Tokyo, Japan) 53

Photoemission and inverse photoemission studies on actinide materials – does any model work?
J.W. Allen, Y.-X. Zhang, L.H. Tjeng (Ann Arbor, MI, USA), L.E. Cox (Los Alamos, NM, USA), M.B. Maple (La Jolla, CA, USA) and C.-T. Chen (Murray Hill, NJ, USA) 57

Selection rule in resonant photoemission in rare earths
M. Kai, A. Tanaka and T. Jo (Hiroshima, Japan) 63

Resonant photoemission study of Gd–Lu and Dy–Lu multilayers
T. Hanyu H. Ishii, S. Hashimoto, T. Yokoyama, K. Jokura, H. Sato (Tokyo, Japan) and T. Miyahara (Tsukuba, Japan) 67

Resonant photoemission in titanium metal
T. Kaurila, J. Väyrynen, M. Isokallio (Turku, Finland) 71

UV reflection spectra of anatase TiO_2
N. Hosaka, T. Sekiya (Yokohama, Japan), M. Fujisawa (Tokyo, Japan), C. Satoko (Tokyo, Japan) and S. Kurita (Yokohama, Japan) 75

Spin flip of 3d electrons due to core electron photoionization
J. Kawai, C. Suzuki and H. Adachi (Kyoto, Japan) 79

Photoemission and ultraviolet inverse-photoemission studies of CrSe with NiAs-type crystal structure
M. Koyama (Kure, Japan), N. Happo, M. Tamura, J. Harada, T. Mihara, A. Furuta, M. Nakatake, H. Sato, M. Taniguchi (Hiroshima, Japan) and Y. Ueda (Tokuyama, Japan) 83

Electronic structure of MnY (Y = S, Se, Te)
H. Sato, T. Mihara, A. Furuta (Hiroshima, Japan), Y. Ueda (Tokuyama, Japan), H. Namatame and M. Taniguchi (Hiroshima, Japan) 87
First-principles calculation of optical conductivity of FeSe and CoSe
H. Ikeda, M. Shirai, N. Suzuki (Toyonaka, Japan) and K. Motizuki (Okayama, Japan) 91
Electronic band structure and photoemission spectra of Fe_7S_8
M. Shirai, N. Suzuki (Toyonaka, Japan) and K. Motizuki (Okayama, Japan) 95
Electronic structure of Fe_3O_4 across the Verwey transition
A. Chainani, T. Yokoya, T. Morimoto, T. Takahashi (Sendai, Japan) and S. Todo (Tokyo, Japan) 99
Theory of photoemission spectra for M_2O_3 (M = Ti, V, Cr, Mn, Fe) compounds
T. Uozumi (Tokyo, Japan), K. Okada (Yamaguchi, Japan) and A. Kotani (Tokyo, Japan) 103
Si K and Co L_3 XANES study of thin-film $CoSi_2$
W.F. Pong, Y.K. Chang (Tamsui, Taiwan), R.A. Mayanovic (Springfield, MO, USA), G.H. Ho, H.J. Lin (Hsinchu, Taiwan), S.H. Ko (Troy, NY, USA), P.K. Tseng (Tamsui, Taiwan), C.T. Chen (Murray Hill, NJ, USA), A. Hiraya (Okazaki, Japan) and M. Watanabe (Sendai, Japan) 107
The inclusion of charge transfer to the conduction band in a cluster model analysis of some 3d transition metal chalcogenides
A.E. Bocquet, T. Mizokawa, K. Mamiya, A. Fujimori (Tokyo, Japan), M. Matoba, S. Anzai (Yokohama, Japan), S. Suga (Toyonaka, Japan) and T. Miyadai (Sapporo, Japan) 111
Resonant Ni 3p and 3s photoemission for the Ni 2p core-excitation in NiO
M. Nakamura (Tamsui, Taiwan) Y. Takata and N. Kosugi (Okazaki, Japan) 115
Theory of XAS and EELS in unfilled shell systems
H. Ogasawara and A. Kotani (Tokyo, Japan) 119
Resonant Auger spectra of Y, YF_3 and YCl_3 in Y L_{III} absorption edge
H. Tezuka (Utsunomiya, Japan), H. Arai (Sendai, Japan), T. Kashiwakura, N. Kozuka, T. Yokohama, A. Kamata, S. Nakai (Utsunomiya, Japan) and Y. Kitajima (Tsukuba, Japan) 123
Study of the electronic structure of disordered Au–Ag alloys using synchrotron radiation
T.-U. Nahm, S.-J. Oh (Seoul, South Korea) and S.-M. Chung (Pohang, South Korea) 127
Theory of resonant inverse photoemission in Ce compounds
A. Tanaka and T. Jo (Hiroshima, Japan). 131
Mixed valence of praseodymium oxides
S.-I. Kimura (Okazaki, Japan), F. Arai and M. Ikezawa (Sendai, Japan) 135
Temperature dependence of the valence-band photoemission spectra in $YbInCu_4$
M. Okusawa (Maebashi, Japan), E. Weschke, R. Meier, G. Kaindl (Berlin, Germany), T. Ishii (Tokyo, Japan), N. Sato, T. Komatsubara (Sendai, Japan) 139
High-resolution photoemission study of UNi_2Al_3 and URu_2Si_2
S.-H. Yang, H. Kumigashira, T. Yokoya, A. Chainani, N. Sato, T. Komatsubara, S.-J. Oh (Seoul, South Korea), T. Takahashi (Sendai, Japan) 143
Correlation effect in resonant photoemission spectra of UPd_2Al_3 and UC
T. Ejima, S. Sato, S. Suzuki, S. Fujimori, M. Yamada, N. Sato, Y. Ōnuki (Toyonaka, Japan), T. Komatsubara (Sendai, Japan), Y. Tezuka, S. Shin and T. Ishii (Tokyo, Japan) 147
Core level dependence of tailing structures in resonant spectra of UC and UB_{12}
T. Ejima, S. Sato, S. Suzuki, S. Fujimori, M. Yamada, M. Kasaya (Sendai, Japan), Y. Ōnuki (Toyonaka, Japan), Y. Tezuka, S. Shin and T. Ishii (Tokyo, Japan) 151
A photoemission study of ultrathin uranium layers on noble metals
S.-I. Fujimori, Y. Saito (Sendai, Japan), T. Ejima (Sendai, Japan), N. Sato, T. Komatsubara, S. Kunii, S. Suzuki, S. Sato (Sendai, Japan) and T. Ishii (Tokyo, Japan). 155
Core level spectroscopy of $Ba_{n+1}Pb_nO_{3n+1}$
M.V. Rama Rao and T. Shripathi (Indore, India) 159
Fermi surface and gap symmetry of $Bi_2Sr_2CaCu_2O_8$: a status report
C. Olson (Ames, IA, USA) 163
Evolution of the electronic structure with doping in $Bi_2Sr_2CaCu_2O_{8+}$ – Angle resolved phot
D.S. Dessau (Boulder, CO, USA), D.S. Marshall, A.G. Loeser, C.-H. Park, A.Y. Matsuura, Z.-X. Shen, P. Fournier, A. Kapitulnik (Stanford, CA, USA), K. Kishio (Tokyo, Japan), J. Eckstein and I. Bozovic (Palo Alto, CA, USA) 167
High-resolution angle-resolved photoemission study of non cuprate two-dimensional superconductor Sr_2RuO_4
T. Yokoya, O. Akaki, H. Kumigashira, A. Chainani, T. Takahashi, H. Katayama-Yoshida (Sendai, Japan), M. Kasai, (Tsukuba, Japan) and Y. Tokura (Tokyo, Japan) 171
Spectroscopic manifestation of mass renormalization in a layered 4d-electron superconductor Sr_2RuO_4
I.H. Inoue (Tsukuba, Japan), Y. Aiura, Y. Nishihara, Y. Haruyama (Tsukuba, Japan), S. Nishizaki, Y. Maeno, T. Fujita (Hiroshima, Japan), J.G. Bednorz and F. Lichtenberg (Rüschlikon, Switzerland) 175
Photoemission study of CeO_2 and $SrCeO_3$
M. Matsumoto (Sakai, Japan), K. Soda (Nagoya, Japan), K. Ichikawa, Y. Taguchi, K. Jouda, M. Kageyama, S. Tanaka (Sakai, Japan), N. Sata, Y. Tezuka, S. Shin (Tokyo, Japan), S. Kimura (Okazaki, Japan) and O. Aita (Sakai, Japan). . 179

Resonant X-ray emission spectra of CuO and La_2CuO_4
K. Ichikawa, K. Jouda, S. Tanaka (Sakai, Japan), K. Soda (Nagoya, Japan), M. Matsumoto, Y. Taguchi, T. Katsumi, O. Aita (Sakai, Japan), H. Maezawa, Y. Azuma (Tsukuba, Japan) and H. Kitazawa (Wako, Japan) 183
Yb 3d photoemission spectra of $Yb(Ba_{0.8}Sr_{0.2})_2Cu_3O_7$ and YbF_3
H. Ishii, K. Jokura (Tokyo, Japan), T. Mitsuishi (Utsunomiya, Japan), H. Arai (Sendai, Japan), S. Nakai (Utsunomiya, Japan), H. Kataura and T. Hanyu (Tokyo, Japan). 187
Photoemission and X-ray absorption spectroscopy of $PrNiO_3$
T. Mizokawa, A. Fujimori (Tokyo, Japan), T. Arima, Y. Tokura (Tokyo, Japan), N. Mōri (Tokyo, Japan) and J. Akimitsu (Tokyo, Japan) 191
Electronic structure and magnetism in valence-control $La_{1x}Sr_xCoO_3$
T. Saitoh, T. Mizokawa, A. Fujimori (Tokyo, Japan), Y. Takeda (Tsu, Japan) and M. Takano (Kyoto, Japan) 195
Ultraviolet photoemission study of $Sr_{1x}La_xTiO_3$
Y. Aiura, H. Bando, I. Hase, Y. Nishihara, Y. Haruyama (Tsukuba, Japan), T. Shimizu (Chiba, Japan) and H. Suzuki (Tsukuba, Japan) 199
XMCD measurements in a high T_c molecular based magnet
M.-A. Arrio, P. Sainctavit (Paris, France), C. Cartier dit Moulin, C. Brouder, F.M.F. de Groot (Orsay, France), T. Mallah and M. Verdaguer (Paris, France) 203
Orbital moments and magnetic circular dichroism at the K edge in 3d transition metals
J. Igarashi (Gunma, Japan) and K. Hirai (Nara, Japan). 209
Spin magnetic moments from angle resolved magnetic circular dichroism in resonant photoemission decay
G. van der Laan, H. Dürr and M. Surman (Warrington, UK) 213
Magnetic circular dichroism of Gd–Co and Gd–Ni alloys in the Gd 3d, 4d and the (Co, Ni) 2p, 3p core excita
T. Hatano, S.-Y. Park (Tsukuba, Japan), T. Hanyu (Tokyo, Japan) and T. Miyahara (Tsukuba, Japan). 217
Influence of hybridization in the Magnetic Circular X-ray Dichroism at the Ce-$M_{4,5}$ absorption edges of Ce–Fe systems
M. Finazzi, F.M.F. de Groot (Orsay, France), A.-M. Dias, J.-P. Kappler, O. Schulte, W. Felsch (Göttingen, Germany) and G. Krill (Orsay, France) 221
Fluorescence detected soft XAS and MCD. Applications to bioinorganic systems
S.P. Cramer, G. Peng, J. Christiansen, J. Chen (Davis, CA, USA), J. van Elp (Berkeley, CA, USA), S.J. George and A.T. Young, (Davis, CA, USA). 225
Magnetic circular dichroism of transition metal- and rare earth-compounds
S. Suga and S. Imada (Osaka, Japan) 231
A new type of magnetic linear dichroism at Fe and Co $M_{2,3}$ edges
T. Kinoshita (Okazaki, Japan), H. Rose, C. Roth, D. Spanke, F. Ulrich Hillebrecht and E. Kisker (Düsseldorf, Germany) 237
Application of MCD in 4f photoemission as an element-specific probe for near-surface magnetization in lanthanide materials
E. Arenholz, K. Starke, E. Navas and G. Kaindl (Berlin, Germany). 241
Magnetic circular dichroism study of KBr and RbBr excitons
H. Kawabe, T. Shidara, T. Koide (Tsukuba, Japan), H. Miyauchi, N. Nakajima (Tokyo, Japan) and H. Fukutani (Tsukuba, Japan) 247
Magnetic circular X-ray dichroism at pre-peak of Fe K-edge in ferrimagnetic Fe-oxides
I. Harada (Okayama, Japan), T. Suzuki and A. Kotani (Tokyo, Japan). 251
Magnet circular dichroism in CoS_2 at the Co $L_{2,3}$ and $M_{2,3}$ core edges
H. Miyauchi, T. Koide, T. Shidara (Tsukuba, Japan), N. Nakajima, H. Kawabe, K. Yamaguchi (Saitama, Japan), A. Fujimori (Tokyo, Japan), H. Fukutani (Tsukuba, Japan), K. Iio (Tokyo, Japan) and T. Miyadai (Hokkaido, Japan) 255
Core-level magnetic circular dichroism in Fe_7S_8 and Fe_7Se_8
H. Miyauchi, T. Koide, T. Shidara (Tsukuba, Japan), N. Nakajima (Tokyo, Japan), H. Kawabe, H. Fukutani (Tsukuba, Japan), K. Shimada, A. Fujimori, K. Iio (Tokyo, Japan) and T. Kamimura (Sendai, Japan). 259
MCD in core absorption region of CoS_2
T. Muro, T. Shishidou, F. Oda, T. Fukawa, H. Yamada, A. Kimura, S. Imada, S. Suga (Toyonaka, Japan), S.Y. Park, T. Miyahara (Tsukuba, Japan) and K. Sato (Tokyo, Japan). 263
Fano effect and magnetic circular dichroism in core absorption region of $CoPt_3$
T. Shishidou, T. Muro, F. Oda, A. Kimura, S. Imada, S. Suga (Toyonaka, Japan), S.Y. Park, T. Miyahara (Tsukuba, Japan), T. Kaneko (Sendai, Japan) and T. Kanomata (Miyagi, Japan). 267
Core-level magnetic circular dichroism in Co/Pt multilayers with varying Co-layer thicknesses
N. Nakajima (Tokyo, Japan), T. Koide, T. Shidara (Tsukuba, Japan), H. Miyauchi, H. Kawabe, H. Fukutani (Tsukuba, Japan), A. Fujimori (Tokyo, Japan), K. Iio (Tokyo, Japan), T. Katayama and Y. Suzuki (Tsukuba, Japan). 271
Core-level magnetic circular dichroism in Fe_3O_4 and $CoFe_2O_4$
T. Koide, T. Shidara (Tsukuba, Japan), K. Ymaguchi, A. Fujimori (Tokyo, Japan), H. Fukutani, N. Kimizuka and S. Kimura (Tsukuba, Japan) 275
MCD in soft X-ray absorption of $Nd_2Fe_{14}B$
S. Imada, T. Muro, S. Suga (Toyonaka, Japan), K. Kobayashi, H. Maruyama and H. Yamazaki (Okayama, Japan) . . 279

La 4d and Mn core absorption magnetic circular dichroism, XPS and inverse photoemission spectroscopy of $La_{1x}Sr_x$
S. Suga, S. Imada, T. Muro, T. Fukawa, T. Shishidou (Osaka, Japan), Y. Tokura (Tokyo, Japan), Y. Moritomo and T. Miyahara (Tsukuba, Japan) 283
Magnetic circular dichroism in the soft X-ray absorption region of several Mn based ferromagnetic alloys
A. Kimura, S. Suga, S. Imada, T. Muro, T. Shishidou (Osaka, Japan), S.Y. Park, T. Miyahara (Tsukuba, Japan), T. Kaneko (Sendai, Japan) and T. Kanomata (Miyagi, Japan) 287
Magneto-optical spectra of bismuth-substituted gadolinium iron garnets in vacuum ultraviolet
M. Suzuki, T. Kotani, N. Yamaguchi, T. Miura, M. Yamaoka, M. Kobayashi and A. Misu (Tokyo, Japan) 291
Magnetic circular dichroism of excitons in KI and RbI
T. Koide, H. Kawabe, T. Shidara (Tsukuba, Japan), H. Miyauchi, N. Nakajima, K. Iio (Tokyo, Japan) and H. Fukutani (Tsukuba, Japan) 295
Element-specific magnetic domain imaging based on linear and circular magnetic dichroism in photoabsorption
D. Dresselhaus (Düsseldorf, Germany), T. Kinoshita (Okazaki, Japan), C. Roth, H.B. Rose, F.U. Hillebrecht and E. Kisker (Düsseldorf, Germany) 299
Magnetic circular X-ray dichroism measurements in 3 keV region: At Pd $L_{2,3}$-edges in 3d transition metals (TM)–Pd alloys (TM = Fe, Co, Ni)
K. Kobayashi, H. Maruyama (Okayama, Japan), T. Iwazumi (Tsukuba, Japan), N. Kawamura, I. Inoue and H. Yamazaki (Okayama, Japan) 303
Magnetic circular dichroism observed with resonant X-ray fluorescence
J.-J. Gallet, J.-M. Mariot, C.F. Hague (Paris, France), K. Hricovini and G. Krill (Orsay, France) 307
Spin-resolved photoemission of valence band and core level satellites of Ni
A. Kakizaki, K. Ono (Tokyo, Japan) and Y. Saitoh (Ibaraki, Japan) 311
Spin-polarized and spin-integrated photoemission study of itinerant ferrimagnetic iron chalcogenides
K. Shimada, T. Mizokawa, T. Saitoh, K. Mamiya, A. Fujimori, K. Ono, A. Kakizaki, T. Ishii (Tokyo, Japan), M. Shirai (Osaka, Japan) and T. Kamimura (Sendai, Japan) 317
A new effect in spin-resolved photoemission from Pt(110) in normal emission by linearly polarized VUV-radiation
N. Irmer, F. Frentzen, S.-W. Yu, B. Schmiedeskamp and U. Heinzmann (Bielefeld, Germany) 321
Spin- and k-dependent electronic structure of ferromagnetic nickel
K. Ono, K. Shimada (Tokyo, Japan), Y. Saitoh (Ibaraki, Japan), T. Sendohda (Tsukuba, Japan), A. Kakizaki, T. Ishii and K. Tanaka (Tokyo, Japan) 325
Spin-resolved core-level photoemission spectra of ferromagnetic nickel
Y. Saitoh, S. Suga (Osaka, Japan), A. Kakizaki (Tokyo, Japan), T. Matsushita, S. Imada, H. Daimon (Osaka, Japan), K. Ono, M. Fujisawa, T. Kinoshita, T. Ishii, J. Fujii and K. Shimada (Tokyo, Japan) 329
Magnetic linear dichroism in spin-resolved Gd 4f photoemission
T. Kinoshita (Okazaki, Japan), H. Rose, C. Roth, F. Ulrich Hillebrecht and E. Kisker (Düsseldorf, Germany) 333
X-ray magnetic circular dichroism spectra and distortions at Fe^{2+} $L_{2,3}$ edges
X. Wang (Davis, CA, USA), F. de Groot (Groningen, Netherlands) and S. Cramer (Davis, CA, USA) 337
Spin polarization of valence band satellites of nickel
K. Ono, A. Kakizaki, K. Shimada (Tokyo, Japan), Y. Saitoh (Ibaraki, Japan), S. Qiao, T. Ishii, K. Tanaka (Tokyo, Japan), T. Sendohda and H. Fukutani (Tsukuba, Japan) 341
Angle-resolved UPS of ultrathin films of functional organic molecules with synchrotron radiation: Determination of molecular orientation by quantitative analysis
N. Ueno (Chiba, Japan) 345
Interpretation of complicated NEXAFS spectra by comparison with Xα-SW calculations
P. Väterlein, H. Dietz, J. Taborski (Würzburg, Germany), W. Wurth (München, Germany) and E. Umbach (Würzburg, Germany) 351
Photoemission study of copper deposition on the conjugated polymer poly-3-hexylthiophene and comparison with quantum-chemical calculations
J. Ghijsen (Namur, Belgium), R. Lazzaroni, V. Parenté, J.-L. Brédas (Mons-Hainaut, Belgium), A. Lachkar, A. Selmani (Montréal, Canada) and R.L. Johnson (Hamburg, Germany) 355
The electronic structure of porphyrin/metal interfaces studied by ultraviolet photoelectron spectroscopy
D. Yoshimura, H. Ishii, S. Narioka, M. Sei, T. Miyazaki, Y. Ouchi (Nagoya, Japan), S. Hasegawa (Okazaki, Japan), Y. Harima, K. Yamashita (Hiroshima, Japan) and K. Seki (Nagoya, Japan) 359
Polarized absorption spectra of polyethylene terephthalate and polyethylene naphthalate films in soft X-ray region
I. Ouchi, I. Nakai (Tottori, Japan), M. Kamada and S.-I. Tanaka (Okazaki, Japan) 363
NEXAFS studies on the temperature dependence of surface structure of solid and liquid pentacontane (n-$CH_3(CH_2)48CH_3$)
Y. Yamamoto, R. Mitsumoto, E. Ito, T. Araki, Y. Ouchi, K. Seki (Nagoya, Japan) and Y. Takanishi (Tokyo, Japan) . 367
NEXAFS studies on the rubbing effects of the surface structure of polyimides
I. Mori, T. Araki, H. Ishii, Y. Ouchi, K. Seki (Nagoya, Japan) and K. Kondo (Hitachi, Japan) 371
Polarized NEXAFS studies on the mechanical rubbing effect of poly(tetrafluoroethylene) oligomer and its model compound
K. Nagayama, M. Sei, R. Mitsumoto, E. Ito (Nagoya, Japan), T. Araki (Tsukuba, Japan), H. Ishii, Y. Ouchi, K. Seki (Nagoya, Japan) and K. Kondo (Hitachi, Japan) 375

NEXAFS spectroscopic studies of molecular orientation in α-sexithienyl evaporated thin films on metal films
T. Okajima (Hyogo, Japan), S. Narioka (Nagoya, Japan), S. Tanimura, K. Hamano, T. Kurata, Y. Uehara (Hyogo, Japan), T. Araki, H. Ishii, Y. Ouchi, K. Seki (Nagoya, Japan), T. Ogama and H. Koezuka (Hyogo, Japan) 379
Core hole effect in NEXAFS spectroscopy of aromatic hydrocarbons: chrysene, perylene and coronene
H. Mitsumoto, E. Ito, H. Ishii, Y. Seki (Nagoya, Japan) and N. Kosugi (Okazaki, Japan) 383
Valence electronic structure at the interface of organic thin films
N. Sato (Kyoto, Japan) and M. Yoshikawa (Yokohama, Japan) 387
Angle-resolved photoemission from oriented thin films of naphthacene: comparison with theoretical spectra
S. Hasegawa, H. Inokuchi (Okazaki, Japan), K. Seki (Nagoya, Japan) and N. Ueno (Chiba, Japan). 391
Angle-resolved ultraviolet photoelectron spectroscopy of oriented film of model compound of poly(*p*-phenylene): wave number(k)-conservation and
H. Ishii, S. Narioka (Nagoya, Japan), K. Edamatsu (Hiroshima, Japan), K. Kamiya (Chiba, Japan), S. Hasegawa (Okazaki, Japan), T. Ohta (Tokyo, Japan), N. Ueno (Chiba, Japan) and K. Seki (Nagoya, Japan) 395
Photoemission study on poly(pyridine-2,5-diyl), poly(2,2′-bipyridine-5,5′-diyl), and their K-doped states
T. Miyamae (Chiba, Japan), D. Yoshimura, H. Ishii, Y. Ouchi, T. Miyazaki (Nagoya, Japan), T. Koike (Chiba, Japan), T. Yamamoto (Yokohama, Japan) and K. Seki (Nagoya, Japan) 399
Electronic structures of polysilanes and related compounds
K. Seki, H. Ishii, A. Yuyama (Nagoya, Japan), M. Watanabe (Sendai, Japan), K. Fukui (Fukui, Japan), E. Ishiguro (Okinawa, Japan), J. Yamazaki, S. Hasegawa (Okazaki, Japan), K. Horiuchi (Hiroshima, Japan), T. Ohta (Tokyo, Japan), H. Isaka, M. Fujino, M. Fujiki, K. Furukawa and N. Matsumoto (Atsugi, Japan) 403
Polarized VUV absorption and reflection spectra of oriented films of poly(tetrafluoroethylene) $(CF_2)_n$ and its model compound
K. Nagayama, T. Miyamae, R. Mitsumoto, H. Ishii, Y. Ouchi and K. Seki (Nagoya, Japan) 407
Optical studies of photochromic furylfulgide single crystal
T. Tayu (Yokohama, Japan), M. Fujisawa (Tokyo, Japan) and S. Kurita (Yokohama, Japan) 411
A cluster model to explain the ionization potential and energy positions of photocurrent structures of anthracene doped in supercritical xenon as a function of
K. Nakagawa, N. Otoda, A. Kimura (Kobe, Japan), D. Nurdiawati (Jakarta, Indonesia), K. Tanaka (Hiroshima, Japan), K. Kimura (Wako, Japan) and A. Ejiri (Okinawa, Japan) 415
Photoionization cross section of aromatic molecules in liquid alkanes
R. Katoh (Tsukuba, Japan), K. Lacmann and W. Schmidt (Berlin, Germany) 419
Fission and fusion of excitons in perylene crystal studied with VUV and X-ray excitation
Y. Takeda, R. Katoh, H. Kobayashi and M. Kotani (Tokyo, Japan) 423
Spectroscopic and dynamic aspects on luminescence of tryptophan powders
M. Taniguchi, K. Tani and M. Katou (Nagoya, Japan) 427
Progress in understanding VUV photoemission in low-dimensionality systems
H. Berger, S. LaRosa, A. Terrasi, M. Marsi, I. Collins (Lausanne, Switzerland), R.J. Kelley, C. Quitmann (Madison, WI, USA), J. Ma, C. Kendziora, E. Skelton (Washington, DC, USA), M. Onellion (Madison, WI, USA) and G. Margaritondo (Lausanne, Switzerland) 431
Core shell electron binding energy behavior of $C_{60}F_{42}$ molecule on the C_{60} precovered GaAs(100) surface
K. Ibrahim, F.Q. Liu, J.F. Jia, Y.H. Dong, Y. Yang, H.J. Qian, S.H. Lu, S.C. Wu and Z.N. Gu (Beijing, People's Republic of China) 437
High-resolution photoemission study of deutrated dimethyl-dicyanoquinonediimine-Cu compound; $(DMe\text{-}DCNQI)_2Cu$
T. Takahashi, T. Yokoya, A. Chainani, A. Tanaka, H. Kumigashira, O. Akaki (Sendai, Japan) and R. Kato (Tokyo, Japan) 441
Radiative transitions in C_{60} thin films under SR excitation
M.A. Terekhin, N.Yu. Svechnikov, V.G. Stankevitch, A.A. Kolmakov, V.A. Stepanov, N. Kamada (Okazaki, Japan), K. Kan'no and I. Akimoto (Kyoto, Japan) 445
Temperature dependence of luminescence intensity and decay times in C_{60} single crystal
A. Kolmakov, V. Stankevitch, N. Svechnikov, P. Dudin, N. Artemev (Moscow, Russian Federation), H. Berger, G. Clerc, G. Margaritondo (Lausanne, Switzerland), M. Kamada, S. Hirose (Okazaki, Japan), K. Kanno, I. Akimoto and T. Matsumoto (Kyoto University, Kyoto, Japan) 449
Soft X-ray absorption, UV photoemission, and VUV absorption spectroscopic studies of fluorinated fullerenes
R. Mitsumoto, K. Seki, T. Araki, E. Ito, Y. Ouchi (Nagoya, Japan), Y. Achiba, K. Kikuchi (Hachioji, Japan), S. Yajima, S. Kawasaki, F. Okino, H. Touhara (Ueda, Japan), H. Kurosaki, T. Sonoda and H. Kobayashi (Kasug, Japan) 453
Photoemission study of K- and Sc-doped C_{84}
A. Ito, O. Akaki and T. Takahashi (Sendai, Japan) 457
Photoionization potentials of fullerenes (C_{60}–C_{84}) doped in a nonpolar liquid
I. Shimoyama, K. Nakagawa (Kobe, Japan) and R. Katoh (Tokyo, Japan) 461
Unusual photoelectron angular distribution of Kish graphite
H. Nishimoto, H. Daimon, S. Suga, S. Imada, T. Matsushita, T. Nakatani (Toyonaka, Japan), H. Namba, T. Ohta (Tokyo, Japan), Y. Kagoshima and T. Miyahara (Tsukuba, Japan) 465

Electron spectroscopic studies of the organic conductors DCNQI (*N*, *N'*-dicyanoquinonediimine)-Cu salts
A. Tanaka, A. Chainani, T. Yokoya, T. Takahashi (Sendai, Japan), T. Miyazaki, S. Hasegawa (Okazaki, Japan) and T. Mori (Tokyo, Japan) 469
High-resolution photoemission and X-ray absorption study of quasi-one-dimensional DCNQI-Cu salt
A. Sekiyama, A. Fujimori, S. Aonuma, H. Sawa and R. Kato (Tokyo, Japan) 473
Angle-resolved photoemission study of $MxTiS_2$ (M = Mn, Fe, Co, Ni; x = 1/3, 1/4)
T. Matsushita, S. Suga, Y. Tanaka, H. Shigeoka, T. Nakatani, T. Okuda, T. Terauchi, T. Shishidou, A. Kimura, H. Daimon (Osaka, Japan), S.-J. Oh (Seoul, South Korea), A. Kakizaki, T. Kinoshita (Tsukuba, Japan), H. Negishi and M. Inoue (Hiroshima, Japan) 477
Photoemission and photon screening in layered crystals
A. Bödicker, A. Leventi-Peetz, W. Schattke (Kiel, Germany) 481
Photoemission and inverse-photoemission spectra of quasi-two-dimensional Mo_4O_{11}
M. Nakatake, M. Tamura, H. Namatame, M. Taniguchi, Y. Ueda (Tokuyama, Japan), K. Morikawa, T. Mizokawa, A. Fujimori (Tokyo, Japan), H. Negishi, M. Inoue (Hiroshima, Japan) 485
Two-dimensional angular distribution of photoemission spectra from the valence band of 1T-TaS_2
T. Matsushita, H. Nishimoto, T. Okuda, T. Nakatani, H. Daimon, S. Suga (Osaka, Japan), H. Namba, T. Ohta (Tokyo, Japan), Y. Kagoshima and T. Miyahara (Tsukuba, Japan) 489
Photoelectron spectra of metal fullerenes: Are metal fullerenes molecular crystals or not?
S. Hino, K. Iwasaki, K. Umishita (Chiba, Japan), T. Miyazaki (Okazaki, Japan), K. Kikuchi and Y. Achiba (Tokyo, Japan) 493
Synchrotron radiation photoemission studies of Fe 3d states in $Cd_{1x}F_xSe$
N. Zema, F. Lama, M. Mangiantini (Frascati, Italy), M. Piacentini, A.C. Felici (Rome, Italy), D. Debowska and A. Kisiel (Kraków, Poland) 497
A photoemission study of the bandstructure of InSb (100)
C. Jung, P.R. Bressler (Berlin, Germany) 503
Photoemission and inverse-photoemission studies of glassy Ge_xSe_{1x}
M. Taniguchi, T. Kouchi, I. Ono, S. Hosokawa, M. Nakatake, H. Namatame (Hiroshima, Japan) and K. Murase (Osaka, Japan) 507
Plasmons in amorphous CaAl alloys determined from photoemission and electron energy loss spectroscopy
S.A. Morton, C.G.H. Walker, D. Greig (Leeds, UK), J.A.D. Matthew (York, UK) and D. Norman (Warrington, UK) 511

Volume 79

A photoemission and inverse-photoemission study of trigonal Se
I. Ono, P.C. Grekos, T. Kouchi, M. Nakatake, M. Tamura, S. Hosokawa, H. Namatame and M. Taniguchi (Hiroshima, Japan) 1
L_3 absorption spectrum of germanium single crystal
S. Naoe, (Kanazawa, Japan), K. Fukui, (Fukui, Japan), H. Abe (Shibata, Japan), M. Watanabe (Sendai, Japan), A. Hiraya, N. Kosugi and Y. Takata (Okazaki, Japan) 5
Optical properties of indium nitride in vacuum ultraviolet region
Q. Guo, H. Ogawa (Saga, Japan) and A. Yoshida (Toyohashi, Japan) 9
Mn 3d states in diluted magnetic semiconductor $Zn_{1x}Mn_xTe$
K. Mimura, N. Happo, H. Sato, J. Harada, K. Miyazaki, H. Namatame (Hiroshima, Japan), Y. Ueda, M. Ohashi (Tokuyama, Japan) and M. Taniguchi (Hiroshima, Japan) 13
Total photoelectric yields of aluminum thin films near the Al $L_{2,3}$ edge
Y. Iguchi (Takamatsu, Japan) 17
Full Multiple Scattering calculations on silicates and oxides at Al K-edge
D. Cabaret, P. Sainctavit, P. Ildefonse (Paris, France) and A.-M. Flank (Orsay, France) 21
Debye–Waller and Condon factors in XAFS
T. Fujikawa, (Chiba, Japan) 25
Spherical Debye–Waller factors in EXAFS
M. Yimagawa, (Yokohama, Japan) and T. Fujikawa, (Chiba, Japan) 29
Time-resolved luminescence study on relaxation dynamics and morphology of self-trapped excitons in ionic crystals
K.-I. Kan'no, (Kyoto, Japan) 33
Multiplication of electronic excitations and formation of radiation defects in alkali halides
A. Lushchik (Tartu, Estonia), M. Kirm (Lund, Sweden) I. Kudryavtseva, C. Lushchik, I. Martinson and E. Vasil'chenko (Tartu, Estonia) 39
Decay of core excitons and STE formed at high density in BaF_2 and CsCl single crystals
K. Kimura, (Wako, Japan) 43
VUV spectroscopy study of lattice defect creation in rare gas solids
E.V. Savchenko, (Kharkov, Ukraine) 47

Intra-ionic transitions of K^+ and Rb^+ ions in KDP, KDA, RDP and RDA crystals
S. Matsumoto, (Kawasaki, Japan), M. Fujisawa, (Tokyo, Japan) and S. Suga, (Osaka, Japan) 51
VUV reflection spectra of ferroelectric $NaNO_2$
M. Ashida, O. Ohta (Kyoto, Japan), M. Kamada, (Okazaki, Japan), M. Watanabe, (Sendai, Japan), R. Kato, (Kyoto, Japan) 55
Optical spectra of thallous halides in 5d core exciton region
M. Fujita, (Kure, Japan), N. Ohno, Y. Kiyama, (Neyagawa, Japan) and K. Nakamura, (Okayama, Japan) 59
Reflection spectra and optical constants of noncrystalline SiO_2 in the soft X-ray region
E. Filatova, V. Lukyanov, (St. Petersburg, Russian Federation), C. Blessing and J. Friedrich, (Hamburg, Germany) . . 63
Luminescence of SR irradiated fused quartz
Han Zhengfu, Shi Junyan, Zhou Yingxue, Deng Jie, Shi Chaoshu, Zhang Guobin and Zhang Xinyi, (Hefei, People's Republic of China) 67
B K-edge XANES of crystalline and amorphous inorganic materials
D. Li, G.M. Bancroft, M.E. Fleet, (London, Ont., Canada) 71
The energy loss Spectroscopy of ABO_3 ferroelectrics
A. Mamedov, S. Güngör, S. Cabuk, (Adana, Turkey) 75
Detection of order–disorder in pyroxenes of the jadeite–diopside series via XAS at the Ca–Na and Mg–Al K-edges
A. Mottana, (Roma, Italy), T. Murata, (Kyoto, Japan), Z. Wu, A. Marcelli, (Frascati, Italy) and E. Paris (Camerino, Italy) 79
Electronic structure of CeF_3 crystal
K. Wei, C. Guo, J. Deng and C. Shi (Hefei, People's Republic of China) 83
Thermoluminescence of BaF_2:RE(Ce, Dy, Eu) crystals
C. Shi, Z. Xie, J. Deng, Y. Dong, X. Yang, Y. Hu, Y. Tian, Y. Kan (Hefei, People's Republic of China) and G. Chen (Beijing People's Republic of China) 87
Mechanisms of intrinsic and impurity luminescence excitation by synchrotron radiation in wide-gap oxides
M. Kirm (Lund, Sweden), E. Feldbach, R. Kink, A. Lushchik, C. Lushchik, A. Maaroos (Tartu, Estonia) and I. Martinson (Lund, Sweden) 91
Energy transfer between Ag^+ and OH impurities in $KMgF_3$ crystals
A. Scacco, C. Mattei, U.M. Grassano, R. Francini, (Roma, Italy), F. Lama and N. Zema, (Frascati, Italy) 95
Time resolved luminescence spectroscopy of wide bandgap insulators
J. Becker (Hamburg, Germany), A.N. Belsky (Moscow, Russian Federation), D. Bouttet (Villeurbanne, France), C. Dujardin (Moscow, Russian Federation), A.V. Gektin (Kharkov, Ukraine), A. Hopkirk (Moscow, Russian Federation), S.N. Ivanov, I.A. Kamenskikh (Villeurbanne, France), N.Y. Kirikova, V. Klimenko, V.N. Kolobanov, V.N. Makhov (Moscow, Russian Federation), P. Martin (Orsay, France), V.V. Mikhailin (Moscow, Russian Federation), I.H. Munro, C. Mythen (Warrington, UK), P.A. Orekhanov (Moscow, Russian Federation), C. Pedrini (Villeurbanne, France), A.Schroeder (Hamburg, Germany), D.A. Shaw (Warrington, UK), N. Shiran (Kharkov, Ukraine), I.N. Shpinkov, A.N. Vasil'ev (Moscow, Russian Federation) and G. Zimmerer (Hamburg, Germany) 99
Radiative recombination of electron–hole pairs of solid Xe in the visible spectral range and inelastic scattering of photoelectrons
M. Hävecker, M. Runne and G. Zimmerer, (Hamburg, Germany) 103
Third molecular continuum in VUV radiation of solid Ar
O.N. Grigorashchenko, S.A. Gubin, A.N. Ogurtsov, E.V. Savchenko and B.I. Verkin (Kharkov, Ukraine) 107
Crossluminescence in ionic crystals
A.N. Belsky, I.A. Kamenskikh, V.V. Mikhailin and A.N. Vasil'ev, (Moscow, Russian Federation) 111
Auger-free luminescence in mixed alkali halides
M. Itoh, (Nagano, Japan), N. Ohno, H. Yoshida, (Neyagawa, Japan), S. Hashimoto, K. Kan'no (Kyoto, Japan) and M. Kamada (Okazaki, Japan) 117
Excitation states of RE^{3+}-pentaphosphates in VUV and UV range
C. Shi, J. Shi, J. Deng, Z. Han, Y. Zhou and G. Zhang, (Hefei, People's Republic of China) 121
Soft-X-ray-fluorescence and inelastic-light-scattering studies of solids
S. Shin, A. Agui, M. Watanabe, M. Fujisawa, Y. Tezuka and T. Ishii, (Tokyo, Japan) 125
X-ray resonant inelastic scattering
Y. Ma, (Seattle, WA, USA) 131
Soft X-ray emission of porous silicon nanostructures
S. Eisebitt, J. Lüning, J.-E. Rubensson (Jülich, Germany), T. van Buuren, S.N. Patitsas, T. Tiedje (Vancouver, B.C., Canada), M. Berger, R. Arens-Fischer, S. Frohnhoff and W. Eberhardt, (Jülich, Germany) 135
Resonant inelastic scattering in localized solid systems by soft X-ray fluorescence spectroscopy
R.C.C. Perera, (Berkeley, CA, USA), J.J. Jia, T.A. Callcott, (Knoxville, TN, USA), J.A. Carlisle, L.T. Terminello, (Livermore, CA, USA), F.J. Himpsel (Yorktown Heights, NY, USA) and D.L. Ederer (New Orleans, LA, USA) 139
Photoelectron and luminescence spectra of BaFCl, BaFBr, and $CsTaF_6$
M. Kamada, N. Takahashi, S. Hirose, (Okazaki, Japan), S. Ohara, (Nagoya, Japan), M.A. Terekhin, S.S. Galaktionov and S.S. Galaktionov (Moscow, Russian Federation) 143

Luminescence quenching as a probe for the local density of electronic excitations in insulators
A.N. Belsky, R.A. Glukhov, I.A. Kamenskikh (Moscow, Russian Federation), P. Martin (Orsay, France), V.V. Mikhailin (Moscow, Russian Federation), I.H. Munro (Warrington, UK), C. Pedrini (Villeurbanne, France), D.A. Shaw (Warrington, UK), L.N. Shpinkov and A.N. Vasil'ev (Moscow, Russian Federation) 147
Vacuum UV photoelectron dynamics in alkali earth fluorides: yield, Auger effect, and luminescence
A. Ejiri (Okinawa, Japan), S. Kubota, A. Hatano (Tokyo, Japan) and K. Arakaki (Okinawa, Japan) 151
Optical luminescence yield spectra of KCl:Tl produced by Cl K- and K K-edge excitations
T. Murata, (Kyoto, Japan), D.T. Jiang, T.K. Sham, X.H. Feng, (London, Ont., Canada) and S.P. Frigo, (Stoughton, WI, USA) 155
Luminescence from self-trapped excitons in BaFCl–BaFBr solid solutions
A. Ohnishi, K. Kan'no, (Kyoto, Japan), Y. Iwabuchi and N. Mori, (Kanagawa, Japan) 159
Emission spectra and decay characteristics in photo-stimulated $(CnH_{2n+1}NH3)_2CdCl_4$: $n = 1, 2, 3$
A. Ohnishi, T. Yamada, T. Yoshinari (Yamagata, Japan), I. Akimoto, K. Kan'no (Kyoto, Japan) and T. Kamikawa (Yamagata, Japan) 163
Decay kinetics of exciton luminescence from two coexisting off-center configurations in KCl:I
M. Abe and K.-I. Kan'no (Kyoto, Japan) 167
Luminescence due to dimer type self-trapped excitons in lead halides
M. Kitaura and H. Nakagawa, (Fukui, Japan) 171
Decay time studies on UV-luminescence in $CdBr_2$–$CdCl_2$ mixed crystals
M. Kitaura, H. Nakagawa, K. Fukui, (Fukui, Japan), M. Fujita, (Kure, Japan), T. Miyanaga, (Wakyama, Japan) and M. Watanabe (Sendai, Japan) 175
4d 2p X-ray emission spectra in rare-earth compounds
K. Jouda, S. Tanaka and O. Aita, (Sakai, Japan) 179
Theory of resonant X-ray emission spectra in Ce compounds
M. Nakazawa (Tokyo, Japan), S. Tanaka, (Osaka, Japan) and T. Uozumi, A. Kotani, (Tokyo, Japan) 183
Polarization study on the B 1s exciton emissions from h-BN and B_2O_3
M. Yanagihara, N. Miyata, M. Furudate, T. Ejima and M. Watanabe, (Sendai, Japan) 187
Soft X-ray emission spectra and band structure in cubic boron nitride
A. Agui, S. Shin, M. Fujisawa, Y. Tezuka, T. Ishii, (Tokyo, Japan), O. Mishima, K. Era, E. Shigemasa and A. Yagishita, (Tsukuba, Japan) 191
Resonant soft X-ray fluorescence study of rutile (TiO_2)
Y. Tezuka, S. Shin, A. Agui, M. Fujisawa, T. Ishii, (Tokyo, Japan) and A. Yagishita, (Tsukuba, Japan) 195
Theory of the 4d 2p and 4f 4d X-ray emission spectroscopies in rare-earth compound
S. Tanaka, (Sakai, Japan), H. Ogasawara (Tokyo, Japan), K. Okada, (Yamaguchi, Japan) and A. Kotani, (Tokyo, Japan) 199
The S-*K* and P-*K* polarized absorption spectra of layered thiophosphates MPS_3 (M = Mn, Fe, Ni, Zn, Mg)
A. Kamata, S. Nakai, T. Kashiwakura, K. Noguchi, N. Kozuka, T. Yokohama, H. Tezuka, Y. Ohno, (Utsunomiya, Japan) and O. Matsudo, (Okazaki, Japan) 203
Soft X-ray resonant Raman and resonant Auger spectra in Si-*K* absorption edge
T. Kashiwakura (Utsunomiya, Japan), H. Arai, (Sendai, Japan), N. Kozuka, K. Odagawa, T. Yokohama, A. Kamata and S. Nakai, (Utsunomiya, Japan) 207
Non-radiative decay channels of B 1s core exciton in h-BN
H. Shimada, N. Matsubayashi, M. Imamura, T. Sato, Y. Kakudate, S. Fujiwara and A. Nishijima, (Tsukuba, Japan) . 211
S-KLL and Cl-KLL spectator Auger decays in monolayered and multilayered molecules
K. Yoshii, Y. Baba and T. Sasaki, (Ibaraki, Japan) 215
Lattice relaxation in Auger decay-free core luminescence
Y. Kayanuma, (Sakai, Japan) and A. Kotani, (Tokyo, Japan) 219
Threshold behaviour of L_3–$M_{4,5}M_{4,5}$ Auger transitions in 4d metals
W. Drube, R. Treusch, R. Dähn, M. Griebenow, M. Grehk and G. Materlik, (Hamburg, Germany) 223
Spectator Auger transitions of resonantly-excited Sr 2p core-holes in ionic strontium compounds
T. Sasaki, Y. Baba, K. Yoshii and H. Yamamoto, (Ibaraki-ken, Japan) 229
VUV induced luminescence from porous silicon
I. Coulthard, D.T. Jiang and T.K. Sham, (London, Canada) 233
Core attraction v.s. electron–electron repulsion in the lopsided energy sharing between a photoelectron and an Auger electron
K. Iwano and K. Nasu, (Tsukuba, Japan) 237
High-resolution electron spectrometry of open-shell atoms
M.O. Krause, (Oak Ridge, TN, USA), C.D. Caldwell, A. Menzel, S. Benzaid, (Orlando, FL, USA) and J. Jiménez-Mier, (México, D.F., Mexico) 241
High resolution electron spectroscopy of atoms and molecules
S. Aksela, (Oulu, Finland) 247
Photoionization study of doubly-excited helium at ultra-high resolution
K. Schulz, G. Kaindl, (Berlin-Dahlem, Germany), J.D. Bozek, P.A. Heimann and A.S. Schlachter, (Berkeley, CA, USA) 253

Differential cross sections for photoionization of He
J. Tang and I. Shimamura, (Saitama, Japan) 259
VUV-photoionization of laser-excited atoms
T. Dohrmann and B. Sonntag, (Hamburg, Germany) 263
Excitation and ionization of polarized atoms
N.M. Kabachnik, (Moscow, Russian Federation) 269
Photoionization of polarized excited Li atoms
N.A. Cherepkov (Bielefeld, Germany), L.V. Chernysheva, V.V. Kuznetsov and S.K. Semenov, (St. Petersburg, Russian Federation) 275
Recent results in energy- and angle-resolved double photoionization
V. Schmidt, S.J. Schaphorst, B. Schwarzkopf and N. Scherer, (Freiburg, Germany) 279
New experiments in photoabsorption studies of singly and multiply charged ions
E.T. Kennedy, J.T. Costello and J.P. Mosnier, (Dublin, Ireland) 283
4d photoionization of singly-charged Xe, Ba, and Eu ions
T. Koizumi (Tokyo, Japan), Y. Awaya (Saitama, Japan), M. Gonno (Tokyo, Japan) Y. Itoh (Saitama, Japan), M. Kimura (Osaka, Japan), T.M. Kojima (Saitama, Japan), S. Kravis, M. Oura, M. Sano (Tokyo, Japan), T. Sekioka (Hyogo, Japan), N. Watanabe, H. Yamaoka (Saitama, Japan) and F. Koike (Kanagawa, Japan). 289
Observation of the $2p^4(^1S)ns$, md excitations in atomic fluorine
C.D. Caldwell, A. Menzel, S. Benzaid, (Orlando, FL, USA) and M.O. Krause, (Oak Ridge, TN, USA) 293
Photoionization of atomic antimony: Multitransition calculations in RPAE
M.Ya. Amusia (Aarhus, Denmark), L.V. Chernysheva and V. K Ivanov, (St. Petersburg, Russian Federation). 295
The near threshold photoionization cross section of atomic scandium
Z. Altun and S. Tokdemir, (Istanbul, Turkey) 299
Auger decay of resonantly excited states in atomic Rb
R. Lakanen, H. Aksela, S. Aksela, (Oulu, Finland), A. Yagishita and E. Shigemasa, (Ibaraki, Japan). 303
Calculations of inner shell transitions in Ca^+
J. Hansen, (Amsterdam, Netherlands) and P. Quinet, (Rennes, France) 307
Quantitative investigation of the decay of KrI $3d^9np$ resonances: cross sections of spectator Auger and Auger shake processes and for cascades on the
A. Ehresmann, F. Vollweiler, H. Schmoranzer, (Kaiserslautern, Germany), G. Mentzel and K.-H. Schartner, (Giessen, Germany) 311
Cross sections and angular distributions of the photoelectron correlation satellites of the the Xe atom
S.B. Whitfield, (Las Vegas, NV, USA), B. Langer (Kalamazoo, MI, USA), J. Viefhaus (Berlin, Germany), R. Wehlitz (Knoxville, TN, USA), N. Berrah, (Kalamazoo, MI, USA), U. Becker, (Berlin, Germany), B.M. Lagutin, I.D. Petrov and V.L. Sukhorukov (Rostov-on-Don, Russian Federation) 315
Quantum dynamics of a two-level atom quadratically coupled to a two-mode electromagnetic field
A. Napoli and A. Messina, (Palermo, Italy). 319
Semi-empirical method for polarizational bremsstrahlung calculation
A.V. Korol, A.G. Lyalin, A.S. Shulakov and A.V. Solovy'ov, (St. Petersburg, Russian Federation) 323
Photon polarization effects in bremsstrahlung and laser-assisted electron–atom scattering
N.L. Manakov, S.I. Marmo and V.V. Volovich, (Voronezh, Russian Federation). 327
Circular dichroism in VUV- and X-ray atom scattering caused by virtual photoionization
N.L. Manakov, S.I. Marmo and A.V. Meremjanin, (Voronezh, Russian Federation) 331
Photoionization of an open-shell atom with open-shell final ionic state: A spin-resolved study of photoelectrons above the Tl^+ (6s6p)
R. Kuntze, M. Salzmann, N. Böwering, U. Heinzmann and N.A. Cherepkov (Bielefeld, Germany) 335
A new approach to the complete experiment of atomic photoionization
H.-J. Beyer (Stirling, UK), J.B. West (Sendai, Japan), K.J. Ross (Southampton, UK), K. Ueda (Sendai, Japan), N.M. Kabachnik (Moscow, Russian Federation), H. Hamdy (Cairo, Egypt) and H. Kleinpoppen (Stirling, UK) 339
Resonance-enhanced two-photon ionization of He and Xe using a mode-locked Ar^+ laser synchronized to VUV synchrotron radiation pulses
M. Meyer, L. Nahon (Orsay, France), J. Lacoursière (Québec, Canada), M. Gisselbrecht, P. Morin (Orsay, France) and M. Larzillière (Québec, Canada) 343
Spectra and term systems of fluorine-like ions
P. Bengtsson, (Saitama, Japan) and C. Jupén, (Lund, Sweden). 347
Molecular symmetries and vibrations in high-resolution inner-shell spectroscopy
N. Kosugi, (Okazaki, Japan). 351
Double core excitation at the sulfur K edge in H_2S, SO_2 and SF_6
C. Reynaud, M.A. Gaveau, P. Millié (Gif-sur-Yvette, France), S. Bodeur (Paris, France), P. Archirel, B. Lévy (Orsay, France) and I. Nenner (Gif-sur-Yvette, France). 357
Rotational and vibrational effects in photoionization: Bridging the gap from microvolts to kilovolts
E.D. Poliakoff, and R.M. Rao, (Baton Rouge, LA, USA) 361

Covariance mapping and triple coincidence techniques applied to multielectron dissociative ionization
L.J. Frasinski, A.J. Giles, P.A. Hatherly, J.H. Posthumus, M.R. Thompson, K. Codling and J.J. Thomson (Reading, UK) 367
The dissociative photoionization of hydrogen and deuterium via the lowest $^1\Sigma_u^+(Q_2)$ superexcited state
K.F. Dunn, J. Geddes, F.P. O'Neill, N. Kouchi and C.J. Latimer, (Belfast, UK) 373
Ion-pair formation in halogen-containing molecules via VUV photoexcitation of Rydberg states
A. Yencha, (Albany, NY, USA) and A. Hopkirk, (Warrington, UK) 377
Density and field induced autoionization of NO valence states
A.K. Al-Omari and R. Reininger, (Stoughton, WI, USA) 381
High resolution vuv photo-absorption cross sections of O_2 near 83.4 nm
H.D. Morgan, H.M. Seyoum, J.D.E. Fortna, (Washington, D.C., USA) and M.L. Furst, (Gaithersburg, MD, USA) . . 387
Photoabsorption, photoionization, and neutral-dissociation cross sections of C_2H_6 and C_3H_8 in the extreme-uv region
K. Kameta, S. Machida, M. Kitajima, M. Ukai, N. Kouchi, Y. Hatano, (Tokyo, Japan) and K. Ito, (Ibaraki, Japan) . 391
Autoionization of NO in an excited valence state affected by perturbations from valence–Rydberg mixing
K. Mitsuke (Okazaki, Japan), Y. Hikosaka, T. Hikida, (Meguro, Japan) and H. Hattori, (Okazaki, Japan) 395
Multicoincidence mass spectrometry of core excited molecules
M. Simon, M. Lavollée, M. Meyer and P. Morin (Orsay, France) 401
Symmetry effects in site-specific fragmentation of carbon dioxide
P.A. Hatherly, K. Codling, (Reading, UK), M. Stankiewicz, (Kraków, Poland) and M. Roper, (Warrington, UK) 407
Dissociation dynamics of B 1s core-excited BF_3 probed by energy-selected electron–energy-selected ion coincidence and angle-reso
K. Ueda, K. Ohmori, M. Okunishi, H. Chiba, Y. Shimizu, Y. Sato, (Sendai, Japan), T. Hayaishi, E. Shigemasa and A. Yagishita, (Tsukuba, Japan) 411
Photoelectron spectroscopy on oriented molecules
F. Heiser, O. Gener, U. Hergenhahn, J. Viefhaus, K. Wieliczek, N. Saito and U. Becker, (Berlin, Germany). 415
Photoelectron spectroscopy of free fullerenes
T. Liebsch, O. Plotzke, R. Hentges, A. Hempelmann, U. Hergenhahn, F. Heiser, J. Viefhaus, U. Becker, (Berlin, Germany) and Y. Xu, (Hangzhou, People's Republic of China) 419
Spectroscopy and dynamics of superexcited molecules as probed by fluorescence measurements
M. Ukai, (Tokyo, Japan) 423
High resolution UV spectroscopy of H_2 and N_2 applied to observations of the planets by spacecraft
J. Ajello (Pasadena, CA, USA), D. Shemansky, (Los Angeles, CA, USA), I. Kanik, G. James, X. Liu, S. Ahmed and M. Ciocca, (Pasadena, CA, USA) 429
VUV photofragment excitation spectroscopy: dynamics on dissociative potential surface of OCS
K. Ohde, A. Hishikawa and K. Yamanouchi, (Tokyo, Japan) 433
Auger decay of fixed-in-space linear molecules
V.V. Kuznetsov and N.A. Cherepkov (St. Petersburg, Russian Federation) 437
C 1s and F 1s photoabsorption and subsequent electronic decay of CH_4, CH_3F, CH_2F_2, CHF_3, and CF
K. Ueda, Y. Shimizu, H. Chiba, M. Okunishi, K. Ohmori, Y. Sato, (Sendai, Japan), E. Shigemasa, (Tsukuba, Japan) and N. Kosugi, (Okazaki, Japan) 441
Excitation energy dynamics observed in N_2 Auger spectra near the K-shell threshold
M. Neeb, A. Kivimäki, B. Kempgens, H.M. Köppe and A.M. Bradshaw, (Berlin, Germany) 445
Spin–orbit interactions between Rydberg states of O_2
J.P. England, B.R. Lewis, (Canberra, ACT, Australia) and M.L. Ginter, (College Park, MD, USA) 449
Temperature-dependent photoabsorption cross sections of selected molecular systems
C.Y. Robert Wu, F.Z. Chen and D.L. Judge, (Los Angeles, CA, USA) 453
Resonant processes in the gas-phase photoemission of neopentane with variable photon energy
C. Cauletti, (Rome, Italy), S. Sorensen, (Lund, Sweden) and M. de Simone, (Tito Scalo, PZ, Italy) 457
Density dependence of the ionization potential of H_2S in argon
A.K. Al-Omari and R. Reininger, (Stoughton, WI, USA) 463
Excitation function measurements of the dissociative photoionization excitation of N_2
M. Kitajima, M. Ukai, S. Machida, K. Kameta, A. Ehresmann, N. Kouchi, Y. Hatano, (Tokyo, Japan), T. Hayaishi and K. Ito (Ibaraki, Japan) 467
Dissociative photoionization of O_2 in the vuv region studied by photoion kinetic energy spectroscopy
M. Ukai, M. Kitajima, S. Machida, Y. Hatano, (Tokyo, Japan), P. Lablanquie, (Orsay, France), T. Hayaishi and K. Ito (Ibaraki, Japan) 471
The dissociative photoionization of H_2O/D_2O between 20 and 40 eV
K.F. Dunn, P.F. O'Neill, R. Browning, C.R. Browne and C.J. Latimer, (Belfast, UK) 475
Studies of decay processes following valence and core shell excitation of small molecules
K. Yoshiki Franzén, P. Erman, A. Karawajczyk, U. Köble and E. Rachlew-Källne, (Stockholm, Sweden) 479
Photoionization studies of some small molecules
Y. Zhang, L. Sheng, F. Qi, H. Gao and S. Yu, (Hefei, People's Republic of China) 483

Positive ion–negative ion coincidence spectroscopy of CO_2 for observation of doubly excited Rydberg states
H. Yoshida and K. Mitsuke, (Okazaki, Japan) 487
Angular correlation between fragment ions from the nitrogen K-shell excited and ionized N_2O
J.-I. Adachi, N. Kosugi, (Okazaki, Japan), E. Shigemasa, A. Yagishita, (Tsukuba, Japan) and P. Hatherly, (Reading, UK) 491
Auger-electron-photoion coincidence studies on ionic fragmentation following the Si 2p ionization of SiF_4
E. Shigemasa, T. Hayaishi, (Tsukuba, Japan), K. Okuno, (Hachioji, Japan), A. Danjo (Niigata, Japan), K. Ueda, Y. Sato (Sendai, Japan) and A. Yagishita, (Tsukuba, Japan) 495
Si:2p core-level photoexcitation and photoionization of organosilicon molecules
S. Nagaoka, T. Fujibuchi, (Matsuyama, Japan), U. Nagashima, S. Kato, K. Takano, (Tokyo, Japan) and I. Koyano, (Hyogo, Japan) 499
Dissociative photoionization of hexacarbonyl tungsten in the range 30–120 eV
Y. Tamenori, K. Inaoka and I. Koyano, (Kamigohri, Japan) 503
Threshold photoelectron spectrum of O_2 in 31–34 eV region
T. Tanaka, Y. Morioka, Y. Lu, T. Matsui, H. Yoshii, (Ibaraki, Japan), R.I. Hall, (Paris, France) and T. Hayaishi, (Ibaraki, Japan) 507
A high resolution study of the photelectron angular distributions and branching ratios for the carbon dioxide molecule in the wavelength region 685–795
J.B. West (Warrington, UK), A.C. Parr (Gaithersburg, MD, USA), M.A. Hayes (Warrington, UK), J.L. Dehmer, P.M. Dehmer (Argonne, IL, USA), K. Ueda (Sendai, Japan), M.R.F. Siggel (Argonne, IL, USA) and J.E. Hardis (Gaithersburg, MD, USA) 511

Volume 80

Autoionization of acetylene studied by two-dimensional photoelectron spectroscopy
H. Hattori and K. Mitsuke (Okazaki, Japan) 1
PFI-ZEKE spectroscopy of the $^2\Pi$ spin–orbit components of HBr^+
R. Irrgang, M. Drescher, F. Gierschner, M. Spieweck and U. Heinzmann (Bielefeld, Germany) 5
Understanding diatomic photodissociation with a coupled-channel Schrödinger equation model
S.T. Gibson and B.R. Lewis (Canberra ACT, Australia) 9
Studies of fluorescence from photoexcitation of N_2 and CO_2 in the 28–100 eV region
C.Y. Robert Wu, F.Z. Chen, T. Hung and D.L. Judge (Los Angeles, CA, USA) 13
Indirect predissociation of the $3p7\pi_u$ f $^1\Sigma^+{}_u$ state o
S.S. Banerjee, B.R. Lewis, S.T. Gibson, J.P. England and K.G.H. Baldwin (Canberra, ACT, Australia) 17
Neutral photodissociation of CO into excited fragments investigated by dispersed fluorescence spectroscopy
A. Ehresmann, S. Machida, M. Ukai, K. Kameta, M. Kitajima, N. Kouchi, Y. Hatano (Tokyo, Japan), K. Ito and T. Hayaishi (Ibaraki, Japan) 21
Neutral dissociation of N_2O in superexcited states
S. Machida, M. Ukai, M. Kitajima, K. Kameta, N. Kouchi, Y. Hatano (Tokyo, Japan), T. Hayaishi and K. Ito (Ibaraki, Japan) 25
Narrow-bandwidth VUV laser measurements of fine-structure predissociation linewidths in the Schumann–Runge bands of O_2
P.M. Dooley, B.R. Lewis, S.T. Gibson and K.G.H. Baldwin (Canberra ACT, Australia) 29
Studies of ion–molecule reactions within clusters $(C_2H_3Cl)_n$
L.S. Sheng, F. Qi, H. Gao, Z.Y. Luo and Y.W. Zhang (Anhui, People's Republic of China) 33
Micro X-ray photoelectron spectroscopy of the laser ablated silicon surface with a laser-produced plasma X-ray source
T. Ohchi, S. Aoki (Ibaraki, Japan) and K. Sugisaki (Tokyo, Japan) 37
Angle-resolved photoemission extended fine structure: multiple layers of emitters and multiple initial states
W.R.A. Huff (Berkeley, CA, USA), Y. Chen (University Park, PA, USA), S.A. Kellar, E.J. Moler (Berkeley, CA, USA), H. Wu (University Park, PA, USA), Z. Hussain (Berkeley, CA, USA) and D.A. Shirley (University Park, PA, USA) . . 41
Photoemission spectroscopy study of the Ge(111) high temperature phase transition
V.R. Dhanak (Liverpool, UK), A. Goldoni, M. Sancrotti, S. Modesti (Trieste, Italy) and A. Santoni (Roma, Italy) . . . 45
Photochemical etching with tunable VUV radiation
U. Streller, B. Li, A. Krabbe, H.P. Krause, I. Twesten and N. Schwentner (Berlin, Germany) 49
Site-specific, synchrotron radiation induced surface photochemistry
S.P. Frigo, J.K. Simons (Stoughton, WI, USA) and R.A. Rosenberg (Argonne, IL, USA) 55
Relaxation of selectively excited atoms at the surface of rare-gas doped rare-gas solids
M. Runne, B. Peters and G. Zimmerer (Hamburg, Germany) 61
Kinetic energy released distributions of ions desorbed from H_2O/Si(100) adsorption system by O 1s excitation
T. Sekiguchi (Tokai, Japan), H. Ikeura (Tsukuba, Japan), K. Tanaka (Higashi-Hiroshima, Japan) and K. Obi (Tokyo, Japan) 65
Photo-induced structural change in a-SiO_2 with undulator radiation
K. Awazu, H. Onuki (Tsukuba, Japan), H. Imai and H. Hirashima (Yokohama, Japan) 69

Synchrotron radiation excited etching of silicon surface studied by velocity distribution measurements of desorbed species
H. Ohashi (Okazaki, Japan) 73
Synchrotron radiation etching of diamond surfaces in the low pressure atmosphere of O_2 and SF_6
E. Ishiguro (Okinawa, Japan), H. Ohashi (Okazaki, Japan), T. Sasano (Osaka, Japan) and K. Shobatake (Nagoya, Japan) 77
Metallization on piezoelectric ceramics surfaces by synchrotron radiation irradiation
J. Ohara, Y. Gotoh, M. Nagakubo, T. Kurahashi, T. Idogaki, T. Hattori (Nisshin, Japan) and T. Urisu (Okazaki, Japan) 81
Exchange reactions on solid surface induced by VUV undulator radiation
H. Nakaishi, Y. Tsutsui, H. Takada (Hyogo, Japan) and H. Onuki (Ibaraki, Japan) 85
Synchrotron radiation induced reactions of condensed layer of organosilicon compounds
M. Niwano, J.-I. Sawahata, T.-Aki Miura, D. Shoji and N. Miyamoto (Sendai, Japan) 89
Synchrotron radiation irradiation effects on low-temperature condensed layer of dimethyl aluminum hydride on SiO_2 surface
Y. Imaizumi, Y. Tsusaka and T. Urisu (Okazaki, Japan) 93
Preparation of ZnO thin films using undulator and ArF excimer laser
A. Yoshida, K. Maeda, S. Ikeda and A. Ganjoo (Toyohashi, Japan) 97
Excitonic energy transfer process in Ne–Kr alloy studied by photon stimulated desorption of metastable atoms
T. Hirayama, T. Nagai, M. Abo, I. Arakawa (Tokyo, Japan), K. Mitsuke (Okazaki, Japan) and M. Sakurai (Kobe, Japan) 101
Orientation and desorption of oxygen admolecules on a Pt(113) stepped surface
T. Yamanaka, T. Matsushima (Sapporo, Japan), S.-I. Tanaka and M. Kamada (Okazaki, Japan) 105
Photoemission, photodesorption and luminescence studies of CsI in the 20–140 eV region
A.N. Belsky (Moscow, Russian Federation), G. Comtet, G. Dujardin (Orsay, France), A.V. Gektin (Kharkov, Ukraine), L. Hellner (Orsay, France), I.A. Kamenskikh (Moscow, Russian Federation), P. Martin (Orsay, France), V.V. Mikhailin (Moscow, Russian Federation), C. Pedrini (Villeurbanne, France) and A.N. Vasil'ev (Moscow, Russian Federation) . . 109
Photon-energy dependence of excited-state Na desorption from Na halides by synchrotron radiation
S. Hirose and M. Kamada (Aichi, Japan) 113
Site specific photochemical reaction of PMMA and related polymers by inner shell electron excitation
M. Tinone (Atsugi, Japan), N. Ueno, J. Maruyama, K. Kamiya, Y. Harada (Chiba, Japan), T. Sekitani and K. Tanaka (Higashi-Hiroshima, Japan). 117
State-specific ion desorption from DCOO/Si(100) by C 1s core excitation
H. Ikeura (Tsukuba, Japan), T. Sekiguchi (Tokai, Japan) and K. Tanaka (Higashi-Hiroshima, Japan) 121
Photon-stimulated desorption study of the NO/Si(111) surface
K. Sakamoto, K. Nakatsuji, H. Daimon, T. Yonezawa, S. Suga (Osaka, Japan), H. Namba and T. Ohta (Tokyo, Japan) 125
Initial stages of nanocrystal growth of compound semiconductors on Si substrates
M. Oshima, Y. Watanabe, S. Heun, M. Sugiyama and T. Kiyokura (Tokyo, Japan). 129
Stoichiometry reversal and depth-profiling in the growth of thin oxynitride films with N_2O on Si(100) surfaces
D.G.J. Sutherland (Yorktown Heights, NY, USA), H. Akatsu, M. Copel, F.J. Himpsel, T. Callcott (Knoxville, TN, USA), J.A. Carlisle, D. Ederer (New Orleans, LA, USA), J.J. Jia (Knoxville, TN, USA), I. Jimenez (Yorktown Heights, NY, USA), R. Perera, D.K. Shuh, L.J. Terminello (Livermore, CA, USA) and W.M. Tong (Berkeley, CA, USA) 133
Application of photoelectron diffraction theory to circular dichroism and spin-polarized photoelectron emission
M.A. Van Hove, A.P. Kaduwela, H. Xiao, W. Schattke, C.S. Fadley (Berkeley, CA, USA) 137
Antimony adsorption on III–V(110) surfaces: growth and structure studied by photoemission and photoelectron diffraction
C. Nowak (Berlin, Germany), A. Chassé (Halle, Germany), W. Braun (Berlin, Germany), W. Richter (Berlin, Germany), I.T. McGovern (Dublin, Ireland) and D.R.T. Zahn (Chemnitz, Germany) 143
Multiple scattering study of synchrotron radiation photoelectron diffraction from Si(001)22–In surface
X. Chen H.W. Yeom, T. Abukawa, Y. Takakuwa, T. Shimatani, Y. Mori (Sendai, Japan), A. Kakizaki (Tokyo, Japan) and S. Kono (Sendai, Japan) 147
Structural and electronic properties of adsorbed C_4H_4S on Cu(100) and Ni(100) studied by S K-XAFS and S-1s XPS
A. Imanishi (Tokyo, Japan), S. Yagi (Hiroshima, Japan), T. Yokoyama (Tokyo, Japan), Y. Kitajima (Ibaraki, Japan) and T. Ohta (Tokyo, Japan) 151
Synchrotron radiation studies on metal/semiconductor interface electronic structures
X.Y. Zhang, P.S. Xu, S.H. Xu, H.B. Pan, E.D. Lu, X.F. Jin, Fudan and R.C. Fang (Hefei, People's Republic of China) 155
Adsorption of SO_2 on Ni(100) and Ni(111) surfaces
T. Yokoyama, S. Terada, A. Imanishi (Tokyo, Japan), Y. Kitajima (Ibaraki, Japan), N. Kosugi (Okazaki, Japan) and T. Ohta (Tokyo, Japan) 161
Photoemission study for Mg/Si(111)11 surface
K.S. An, R.J. Park, J.S. Kim, C.Y. Park (Suwon, South Korea), C.Y. Kim, J.W. Chung (Pohang, South Korea), T. Kinoshita and A. Kakizaki (Tsukuba, Japan) 165
Structural and electronic properties of As:Ge_n on Si(001) surface
J. Che, K. Zhang and X. Xie (Shanghai, People's Republic of China) 169
Band-dispersion-originated photoelectron intensity oscillations during Si epitaxial growth on Si(100)
Y. Enta, Y. Takegawa, D. Shoji, M. Suemitsu, Y. Takakuwa (Sendai, Japan), H. Kato (Tsukuba, Japan) and N. Miyamoto (Sendai, Japan) 173

An angle-resolved photoelectron spectroscopy study of the electronic structures of Si(001)22–Al and –In surfaces
H.W. Yeom, T. Abukawa, Y. Takakuwa, M. Nakamura, M. Kimura, T. Shimatani, Y. Mori (Sendai, Japan), A. Kakizaki (Tokyo, Japan) and S. Kono (Sendai, Japan) 177
Studies of Mg overlayer on GaAs(100) surface treated by CH_3CSNH_2
E.D. Lu, S.H. Xu, P.S. Xu, X.J. Yu, F.P. Zhang, H.B. Pan, X.Y. Zhang (Anhui, People's Republic of China), T. X Zhao and T.P. Zhao (Anhui, People's Republic of China) 181
Photoemission studies of Mg deposition on sulfurized GaSb(100) surface
E.D. Lu, S.H. Xu, P.S. Xu, X.J. Yu, F.P. Zhang, X.Y. Zhang (Anhui, People's Republic of China), T.X. Zhao and T.P. Zhao (Hefei, People's Republic of China) 185
Photoemission study of the Sm/Si(100)21 interface
S.-H. Xu, E.-D. Lu, X.-J. Yu, H.-B. Pan, F.-P. Zhang and P.-S. Xu (Anhui, People's Republic of China) 189
Valence band offset and interface formation of Ge/ZnSe(100) studied by synchrotron radiation photoemission
F. Yang, D. Ban, R. Fang, S. Xu, P. Xu (Hefei, People's Republic of China) and S. Yuan (Shanghai, People's Republic of China) 193
Synchrotron radiation photoemission study of Ge/ZnS(111) heterojunction
D. Ban, F. Yang, R. Fang, S. Xu and P. Xu (Hefei, People's Republic of China) 197
Surface states and surface umklapp transitions in angle-resolved photoemission from a GaAs($\bar{1}\bar{1}\bar{1}$)-22 surface
Y.Q. Cai, R.C.G. Leckey, J.D. Riley, A.P.J. Stampfl (Bundoora, Vic., Australia) and L. Ley (Erlangen, Germany) . . . 201
Surface core exciton of alkali chloride film on Si(100)
S. Tanaka, N. Takahashi (Okazaki, Japan), K.-P. Lee (Taegu, South Korea) and M. Kamada (Okazaki, Japan) 205
$(NH_4)_2S_x$-treated GaAs surfaces studied by soft X-ray photoelectron spectroscopy and S K-edge XANES
S. Maeyama, M. Sugiyama and M. Oshima (Tokyo, Japan) 209
Photoemission study of Mn–ZnTe(110) interface
N. Happo, H. Sato, J. Harada, T. Mihara, M. Taniguchi (Higashi-Hiroshima, Japan) and Y. Ueda (Tokuyama, Japan) 213
Electronic structure of the Mn/$Cd_{0.96}Zn_{0.04}$Te(111) interface studied by synchrotron radiation
P.S. Xu, F.Y. Yang, S.H. Xu, E.D. Lu, X.J. Yu and R.C. Fang (Hefei, People's Republic of China) 217
Synchrotron radiation photoelectron spectroscopy study of bonding at heterointerfaces between InAs nanocrystals and Se-terminated GaAs
Y. Watanabe, F. Maeda and M. Oshima (Tokyo, Japan) 221
Photoelectron spectroscopy on reconstructed GaSb(001)
F. Maeda, Y. Watanabe and M. Oshima (Tokyo, Japan) 225
Surface core level shifts of the Au adsorbed Si(111) reconstructed surfaces
T. Okuda, H. Daimon, H. Shigeoka, S. Suga (Toyonaka, Japan), T. Kinoshita and A. Kakizaki (Tsukuba, Japan) 229
Core-level photoemission study of the Si(111)41–In surface
T. Abukawa, M. Sasaki, F. Hisamatsu, M. Nakamura (Sendai, Japan), T. Kinoshita, A. Kakizaki (Tokyo, Japan) and T. Goto, S. Kono (Sendai, Japan) 233
Core level study of NbC(100) and NbN(100)
L.I. Johansson and H.I.P. Johansson (Linköping, Sweden) 237
Photoemission and ion scattering study of Ce/Ni(110) and Ce/Cu(110) systems
T. Okane, M. Yamada, S. Suzuki, S. Sato (Sendai, Japan), T. Kinoshita, A. Kakizaki, T. Ishii (Tokyo, Japan), T. Kobayashi, S. Shimoda, M. Iwaki and M. Aono (Saitama, Japan) 241
Adsorption of SO_2 on Ni(110) studied by S K-edge XAFS
S. Terada, A. Imanishi, T. Yokoyama (Tokyo, Japan), Y. Kitajima (Ibaraki, Japan) and T. Ohta (Tokyo, Japan) 245
Spectroscopic diagnostics on low aspect-ratio tokamaks
D. Stutman, Y.S. Hwang, M. Ono (Princeton, NJ, USA), M. Finkenthal and H.W. Moos (Baltimore, MD, USA) 249
Reduction of X-ray laser driver energy
P. Zeitoun, A. Carillon, A. Demir, E. Fill, M. Holden, P. Jaegle, G. Jamelot, A. Klisnick, J. Krishnan, C. Lewis, M. Nantel, A. McPhee (Belfast, UK), B. Rus (Prague, Czech Republic), (Orsay, France), D. Schlögl (Garching, Germany), G. Tallents (Colchester, UK) 255
Multilayer EUV/X-ray polychromators for plasma diagnostics
L.A. Shmaenok, Y. Platonov, N.N. Salashchenko (Nizhny Novgorod, Russian Federation), A.A. Sorokin, D.M. Simanovskii, A.V. Golubev, V.P. Belik, S.V. Bobashev (St.-Petersburg, Russian Federation), F. Bijkerk, E. Louis, F.G. Meijer (Nieuwegein, Netherlands), B. Etlicher (Palaiseau, France), A.Ya. Grudsky (St.-Petersburg, Russian Federation) 259
Intense coherent VUV radiation from a self-trapped ultra-short laser pulse
H. Nishioka, W. Odajima and K.-I. Ueda (Tokyo, Japan) 263
Tunable vacuum ultraviolet laser – ideal light for spectroscopy of atoms, molecules, and clusters
K. Yamanouchi (Tokyo, Japan) 267
Impurity behaviour in Heliotron E plasmas
C. Christou, K. Kondo, F. Sano, H. Zushi, T. Mizuuchi, S. Besshou, H. Okada, K. Nagasaki (Uji, Japan), Y. Kurimoto, H. Funaba, T. Hamada, T. Kinosita (Kyoto, Japan), S. Kado (Kasuga, Japan), M. Wakatani and T. Obiki (Uji, Japan) 271

Plasma diagnostics using vacuum ultraviolet radiation and soft X-rays in the GAMMA 10 tandem mirror device
M. Hirata, T. Cho, J. Kohagura, Y. Sakamoto, S. Kanke, K. Takahashi, K. Yatsu, T. Tamano, S. Miyoshi, T. Kondoh, K. Hirano and H. Maezawa (Ibaraki, Japan) 275
A novel analysis method for plasma light and soft X-ray tomography data including the three-dimensional diffusion in a semiconductor detector array
J. Kohagura, T. Cho, M. Hirata, K. Yatsu, T. Tamano, T. Sekitani, K. Hirano and H. Maezawa (Ibaraki, Japan) 279
Isoelectronic behavior of resonant and intercombination lines in MgI-like ions
K.B. Fournier, W.H. Goldstein (Livermore, CA, USA), M. Finkenthal (Baltimore, MD, USA), R.E. Bell (Princeton, NJ, USA) and J.L. Terry (Cambridge, MA, USA) 283
Ultra-fast 2-dimensional X-ray imaging with a 10-ps resolution for use in laser fusion research
H. Shiraga, M. Heya, M. Nakasuji, T. Yamanaka and Y. Kato (Osaka, Japan) 287
Two dimensionally space-resolved electron temperature measurement of laser created fusion plasmas
K. Fujita, H. Nishimura (Osaka, Japan), I. Uschmann, E. Förster (Jena, Germany), H. Takabe, Y. Kato, S. Nakai and K. Mima (Osaka, Japan) 291
Measurements of extreme UV yields from Nd–YAG plasmas using a multilayer monochromator
J.P. Mosnier (Dublin, Ireland) S. Bac, R. Barchewitz (Paris, France), E.T. Kennedy, M. Collins and J.T. Costello (Dublin, Ireland) 295
Normal incidence multilayer telescope for galactic EUV observation
T. Yamazaki (Nagoya, Japan), Y. Takizawa (Tokyo, Japan), H. Kunieda, K. Yamashita, K. Ikeda, K. Misaki (Nagoya, Japan), M. Nakamura, I. Yoshikawa (Tokyo, Japan) and A. Yamaguchi (Mitaka, Japan) 299
Optimization and evaluation of varied line spacing plane grating monochromators for third-generation synchrotron radiation sources
M. Koike (Berkeley, CA, USA) and T. Namioka (Tokyo, Japan) 303
Design and performance of a soft X-ray interferometer for ultra-high resolution Fourier transform spectroscopy
E.J. Moler, Z. Hussain, R.M. Duarte and M.R. Howells (Berkeley, CA, USA) 309
Stable silicon photodiodes for absolute intensity measurements in the VUV and soft X-ray regions
E.M. Gullikson (Berkeley, CA, USA), R. Korde (Torrance, CA, USA), L.R. Canfield and R.E. Vest (Gaithersburg, MD, USA) 313
Progress of the Super-ACO storage ring Free Electron Laser in the UV as a source for users
T. Hara, M.E. Couprie (Gif-sur-Yvette, France), D. Garzella (Orsay, France), L. Nahon (Gif-sur-Yvette, France), M. Marsi (Lausanne, Switzerland), R. Bakker (Gif-sur-Yvette, France) and M. Billardon (Orsay, France) 317
Recent progress in synchrotron radiation lithography
K. Deguchi, K. Miyoshi and T. Matsuda (Kanagawa, Japan) 321
Soft X-ray spectromicroscopy
J. Voss, M. Fornefett, C. Kunz, A. Moewes, M. Pretorius, A. Ranck, M. Schroeder and V. Wedemeier (Hamburg, Germany) 329
Biological microscopy and soft X-ray optics at Stony Brook
C. Jacobsen, H.N. Chapman, J. Fu, A. Kalinovsky, J. Kirz, J. Maser, A. Osanna, S. Spector (Stony Brook NY, USA), D. Tennant (Holmdel, NJ, USA), S. Wang, S. Wirick and X. Zhang (Stony Brook NY, USA) 337
Confocal imaging using synchrotron radiation
I.H. Munro, G.R. Jones, M. Tobin, D.A. Shaw (Warrington, UK), Y. Levine, H. Gerritsen, K. van der Oord (Utrecht, Netherlands) and F. Rommerts (Rotterdam, Netherlands) 343
Observation of polymer alloy by spectral soft X-ray microscopy with a laser plasma X-ray source
A. Takeichi, H. Azuma and S. Noda (Aichi, Japan) 349
Study of the X-ray microbeam for scanning microscopes
Y. Iketaki, Y. Horikawa, S. Mochimaru, K. Nagai (Hachioji, Japan), T. Kiyokura, M. Oshima (Musashino, Japan) and A. Yagishita (Tsukuba, Japan) 353
Development of a grazing incidence soft X-ray microscope with a laser-produced plasma source
T. Ogata, K. Iimura, S. Aoki (Ibaraki, Japan), Y. Yoshidomi, O. Mitomi and K. Shinada (Tokyo, Japan) 357
Soft X-ray scanning photoelectron microscope using Wolter-type focusing mirror
M. Hasegawa, A. Yoneyama, K. Ninomiya (Tokyo, Japan) 361
Soft X-ray microscope with zone plate at UVSOR
N. Watanabe, S. Aoki (Tsukuba, Japan), Y. Shimanuki, K. Kawasaki (Yokohama, Japan), M. Taniguchi (Nagoya, Japan), E. Anderson, D. Attwood (Berkeley, CA, USA), D. Kern (Yorktown Heights, NY, USA), S. Shimizu, H. Nagata, Y. Horikawa, S. Mochimaru (Tokyo, Japan) and H. Kihara (Hirakata, Japan) 365
Observation of the internal membrane system of COS cells by X-ray microscopy
H. Kihara, A. Yamamoto (Osaka, Japan), P. Guttmann and G. Schmahl (Göttingen, Germany) 369
Monochromatizing phase modulation multilayer zone plates
M. Koike and I. Suzuki (Ibaraki, Japan) 373
Application of multilayers to VUV and X-ray astronomy
K. Yamashita (Nagoya, Japan) 375

Thermal stability of Mo/C/Si/C multilayer soft X-ray mirrors
H. Takenaka and T. Kawamura (Tokyo, Japan) 381
Soft X-ray polarization and magnetic circular dichroism measurement system
Y. Hirai (Saitama, Japan), H. Takahashi, M. Komuro and Y. Sugita (Tokyo, Japan). 385
Mo/Si multilayer coated laminar phase and ruled blaze gratings for the soft X-ray region
U. Kleineberg, H.-J. Stock, A. Kloidt, K. Osterried, D. Menke, B. Schmiedeskamp, U. Heinzmann (Bielefeld, Germany), D. Fuchs, P. Müller, F. Scholze, G. Ulm (Berlin, Germany), K.F. Heidemann and B. Nelles (Oberkochen, Germany) . 389
High-resolution band-pass photon detector for inverse-photoemission spectroscopy
H. Namatame, M. Tamura, M. Nakatake, H. Sato (Higashi-Hiroshima, Japan), Y. Ueda (Tokuyama, Japan), M. Taniguchi (Higashi-Hiroshima, Japan) and M. Fujisawa (Tanashi, Japan) 393
UV detector calibration based on ESR using undulator radiation
T. Saito, I. Saito, T. Yamada, T. Zama and H. Onuki (Ibaraki, Japan) 397
High resolution soft X-ray bending magnet beamline 9.3.2 with circularly polarized radiation capability at the advanced light source
Z. Hussain, W.R.A. Huff, S.A. Kellar, E.J. Moler, P.A. Heimann, W. McKinney, H.A. Padmore, C.S. Fadley, (Berkeley, CA, USA) and D.A. Shirley (University Park, PA, USA) 401
Recent performances of the soft X-ray crystal monochromator stations BL-2A and BL-11B with new focusing mirrors at the Photon Factory
Y. Kitajima (Ibaraki, Japan) 405
Beamline 4B9B and photoemission spectroscopy station in BSRF
F.Q. Liu, K. Ibrahim, H.J. Qian, Y. Yang, X.P. Tao, J.F. Jia and Y.H. Dong (Beijing, People's Republic of China) . . 409
VUV equipment at Kurchatov SR source
K.V. Kaznacheyev, S.N. Ivanov and V.G. Stankevitch (Moscow, Russian Federation). 413
Construction and commissioning of a superconducting wiggler for the UVSOR storage ring
E. Nakamura, H. Hama, J. Yamazaki, T. Kinoshita, O. Matsudo, H. Yonehara, T. Kasuga, G. Isoyama and M. Watanabe (Okazaki, Japan). 421
Polarization characteristics of polarizing undulator radiation installed in the electron storage ring NIJI-II
M. Yuri (Tokyo, Japan), K. Yagi, T. Yamada and H. Onuki (Ibaraki, Japan) 425
Modified polarizing undulator for measurements of linear and circular dichroisms
K. Yagi and H. Onuki (Ibaraki, Japan) 429
Characterization of a novel elliptically polarized wiggler
K.J. Randall, Z. Xu, E. Gluskin, I. McNulty, R. Dejus (Argonne, IL, USA), S. Krinsky, O. Singh, C.-C. Kao, E.D. Johnson (Upton, NY, USA), C.T. Chen and G. Meigs (Murray Hill, NJ, USA) 433
Design of a helical undulator for UVSOR
S.-I. Kimura, M. Kamada, H. Hama (Okazaki, Japan), X.M. Maréchal (Wako, Japan), T. Tanaka (Kyoto, Japan) and H. Kitamura (Wako, Japan) 437
Characteristics of figure-8 undulator radiation
T. Tanaka (Kyoto, Japan) and H. Kitamura (Wako, Japan) 441
Commissioning and performance of the Pohang Light Source
T. Lee, S.S. Chang, J.Y. Huang, M. Kwon, S.H. Nam, M. Yoon and T.N. Lee (Pohang, South Korea) 445
Interface roughness and density characterization of multilayer mirrors by using X-ray standing waves
T. Kawamura, H. Takenaka and T. Hayashi (Tokyo, Japan). 449
Thermal stablity of nickel–carbon XUV multilayers
G.S. Lodha, S. Pandita, A. Gupta, R.V. Nandedkar (Indore, India) and K. Yamashita (Nagoya, Japan) 453
Multilayer X-ray interference mirrors in the ultrasoft X-ray region
I.I. Lyakhovskaya (St. Petersburg, Russian Federation) and E.A. Bugaev (Kharkov, Ukraine). 457
Multilayer sputter deposition stress control
M. Tinone, T. Haga and H. Kinoshita (Atsugi, Japan) 461
Thin film ellipsometry at a photon energy of 97 eV
M. Yamamoto (Sendai, Japan), K. Mayama, H. Kimura (Wako, Japan), Y. Goto and M. Yanagihara (Sendai, Japan) 465
Strong angular effects in reflection MCD measurements of $M_{2,3}$ transitions utilizing a newly developed quadruple reflection polarizer
H. Höchst (Stoughton, WI, USA), D. Zhao (Madison, WI, USA) and D. Huber (Stoughton, WI, USA) 469
The EUV performance of an ion-etched blazed diffraction grating
M.P. Kowalski, R.G. Cruddace, J.F. Seely, J.C. Rife (Washington, DC, USA), W.R. Hunter (Landover, MD, USA) and T.W. Barbee Jr. (Livermore, CA, USA). 473
Efficiencies of diffraction gratings by an electromagnetic theory
T. Sasano, M. Mimura, H. Kushibe, N. Hiroshige (Osaka, Japan) and E. Ishiguro (Okinawa, Japan). 477
A profilometer for Synchrotron Radiation Mirrors
S. Sato (Sendai, Japan), T. Mori, Y. Higashi (Ibaraki, Japan), S. Haya, M. Otsuka and H. Yamamoto (Tokyo, Japan) 481

Development and performance of a profilometer for measurement of mirror surface figure
H. Sugawara (Maebashi, Japan), M. Yanagihara (Sendai, Japan), S. Asaoka (Tsukuba, Japan), M. Okusawa (Maebashi, Japan) and H. Maezawa (Tsukuba, Japan) 485
Aspherically bent SiC mirror: bending test
E. Ishiguro (Okinawa, Japan), H. Sugawara (Gunma, Japan), M. Okuyama, N. Waku (Osaka, Japan), S. Sato (Miyagi, Japan) and T. Takigawa, (Tokyo, Japan). 489
Improvement of the aging characteristics of deuterium lamp
T. Zama, K. Awazu and H. Onuki (Ibaraki, Japan). 493
Platinum carbon multilayer grating: preparation and characterization
G.S. Lodha (Indore, India), K. Yamashita, H. Kunieda, T. Yamazaki (Nagoya, Japan), I. Hatsukade (Miyazaki, Japan), E. Ishiguro (Okinawa, Japan), T. Suzuki and M. Ohtani (Tokyo, Japan) 497
Measurement of circular dichroism spectra with a polarizing undulator
T. Yamada, H. Onuki (Ibaraki, Japan), M. Yuri (Tokyo, Japan) and S. Ishizaka (Toyama, Japan) 501
Some aspects of the design study on a fourth-generation-like VUV/SXR light source
L. Chen (Hyogo, Japan) 505
Soft X-ray absorption spectroscopy in 100–1000 eV region at the ALS
J.J. Jia (Knoxville, TN, USA), J.H. Underwood, E.M. Gullikson (Berkeley, CA, USA) and T.A. Callcott (Knoxville, TN, USA), R.C.C. Perera (Berkeley, CA, USA) 509
Concluding remarks on the VUV 11 conference
G. Margaritondo (Lausanne, Switzerland). 513